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Rosen. Archaeological researches
on the frontier of Argentina
and Bolivia in 1901-02. 1904

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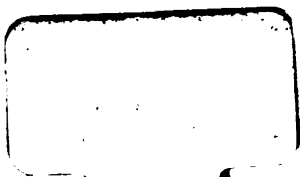
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FROM

Mrs. A. Kingsley Porter

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ARCHÆOLOGICAL RESEARCHES

ON THE FRONTIER OF

ARGENTINA AND BOLIVIA

IN 1901—1902

A PRELIMINARY REPORT

DEDICATED TO

THE XIVTH INTERNATIONAL CONGRESS OF AMERICANISTS

AT STUTT GART 1904

BY

ERIC VON ROSEN

STOCKHOLM

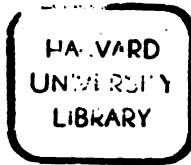


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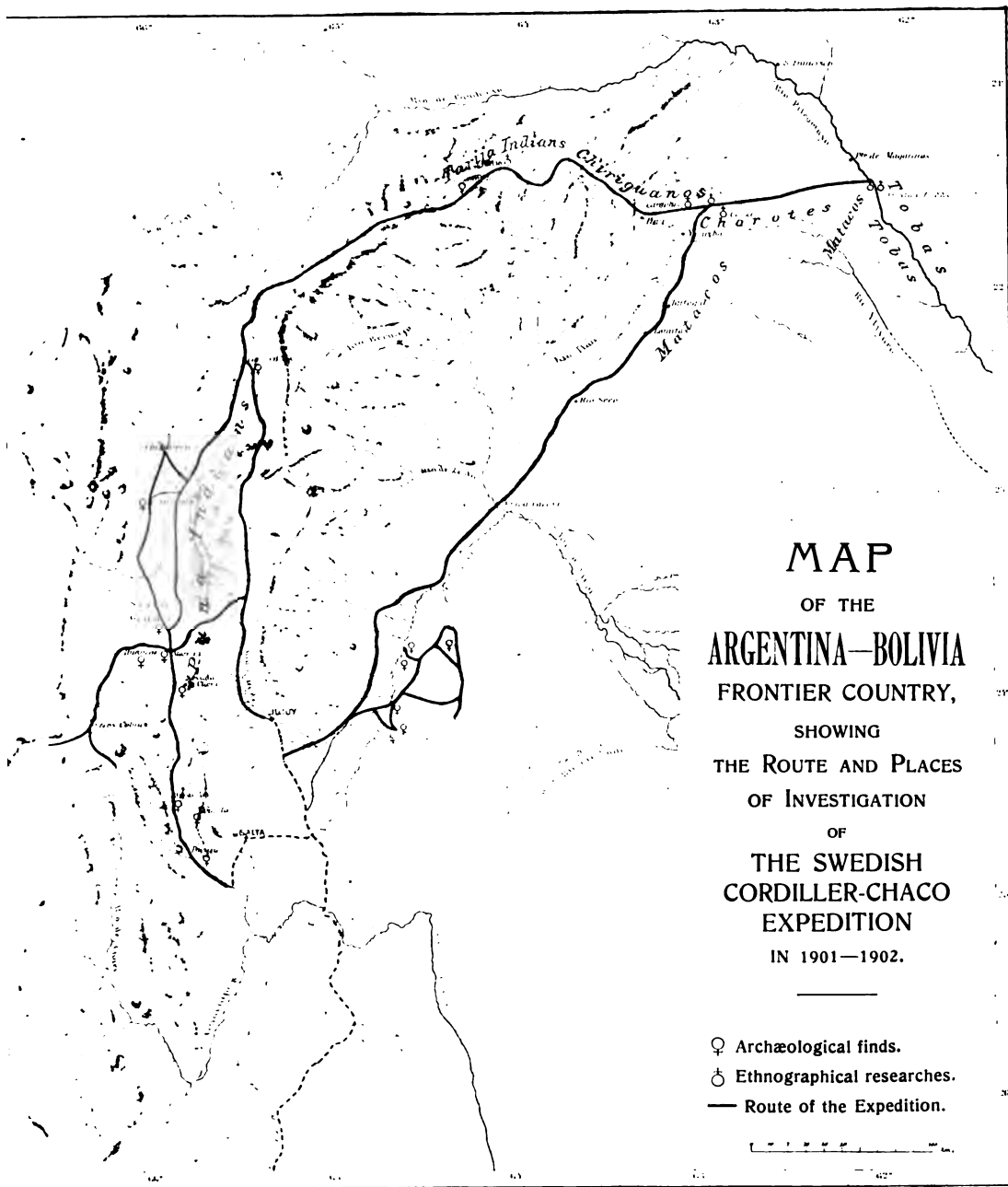
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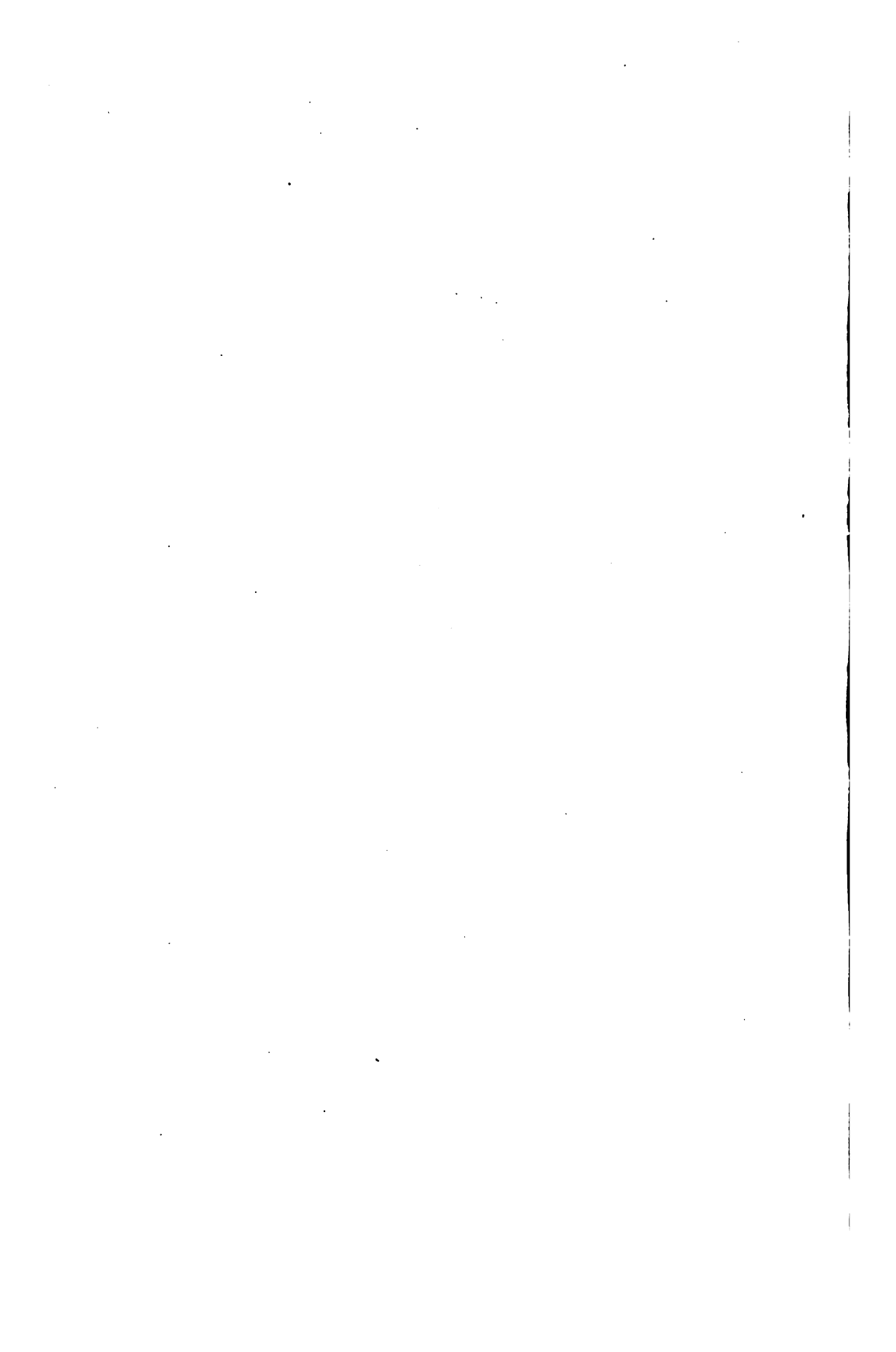


PHOTOGRAPHS BY THE AUTHOR.



MAP
OF THE
ARGENTINA—BOLIVIA
FRONTIER COUNTRY,
SHOWING
THE ROUTE AND PLACES
OF INVESTIGATION
OF
THE SWEDISH
CORDILLER-CHACO
EXPEDITION
IN 1901—1902.

- ♀ Archæological finds.
♂ Ethnographical researches.
— Route of the Expedition.



In the Spring of 1901 an expedition left Sweden, under the leadership of Baron Erland Nordenskiöld, for the Argentine Republic and Bolivia. Of that expedition I became a member, for the purpose of carrying on archæological and ethnographical research. Time does not admit of my sketching here the course of the expedition, and that is the less necessary as Baron Nordenskiöld has already published several essays in which an account of its doings has appeared; I at once, therefore, pass on to describe the archæological results I was able to obtain during the progress of the expedition.

About 3,500 metres above the sea, at the foot of the chain of mountains that border on the West the lofty plain of Puna de Jujuy in Northern Argentina, a farm, Casabindo, is situated. The district round, now desolate and almost desertlike, was nevertheless at one time inhabited by numbers of people; evidence of that fact exists in the very numerous remnants of huts, corrals and irrigation terraces. These monuments of a by-gone civilization have long been known to exist, and Dr Uhle visited the place on one of his journeys, yet, save for Dr Lehmann-Nitsche's Catalogue of the Puna Collection in the La Plata Museum and some statements in Ambrosetti's essay, entitled »Antigüedades Calchaquies», nothing has up to the present been published relative to Casabindo.

About one kilometre north of the farm there are some heights, formed of a tolerably loose species of rock resembling sandstone. Owing to weathering and the effect of the

wind grotto-like excavations of varying dimensions have been formed in the rock in the process of time; many of these grottoes have in earlier times been used as burial-places. On Pl. I, Figs. 1, 2 we see photographs of one of those grottoes, showing, in the corner, a skeleton which I unearthed. The grottoes average about 1,5 metres in depth and about 2 metres in height at the entrance. The rock forming the foundation of the grotto slopes usually downwards from the entrance, but rises again further in, so that a longitudinal section shows that the floor, the inner wall and the roof of the grotto together form a curve, which nearly approximates to $\frac{2}{3}$ of the circumference of a circle. Thus the floor of the grotto is markedly concave in form; it is covered with a layer of sand, usually of a depth of as much as one metre at the deepest part. In that layer the corpse is found deposited in a sitting posture, or else, where there was not a sufficient depth of sand, in a lying one, but always with the legs bent up and pressed upon the chest, so that the chin and knees almost touch. I have not observed that the corpse was systematically placed facing any particular point of the compass. In front of the entrance to the grotto there is often to be seen a semi-circular arrangement of stones, piled in several courses, one on top of another; that was presumably a precautionary measure against the removal of the sand by the blowing of the wind. As a rule, I found only one skeleton in each grotto, but in some there were up to the number of three. In some graves the dead had household utensils etc. lying beside them, though in only one of the graves which I examined was there any trace of clothes. As the layer of sand in the graves has never been exposed to the influence of any damp to speak of, a number of the corpses, instead of rotting away, have merely dried up; they resemble mummies in appearance. It seems to me scarcely probable that any species of embalming was resorted to; it must, indeed,

have been superfluous, inasmuch as the articles of wood and other perishable or destructible substances which I found in the grottoes, are in remarkably good preservation.

I succeeded in collecting a fairly large number of specimens of skeletons, both of adults and children. Professor Retzius is at present studying them, and he informs me that all the heads from here bear evidence of having been artificially deformed to a greater or less extent. The hairs upon them are coal-black, coarse but not very stiff. Round one of the heads there was a curious bandage of llama wool. The body, to which this skull belongs, was wrapt round in two woven mantles, one of a very delicate texture, worked in a strange pattern and of an exceedingly pretty colour, the other coarser and very thick. The finer one is probably of vicuña wool and was woven in a peculiar manner whereby the threads were made to follow the pattern. Consequently the threads in some places are very closely packed together, in others wider apart. The coarser mantle is of llama wool. Close to the skin of the dead body I found remnants of a garment of some thin material, originally white in colour.

As already mentioned, in the majority of cases articles had been deposited in the graves with the dead bodies; as a rule these articles consisted of a bowl, some corncobs and a cup, which at the time of the burial was probably filled with water, as is the custom to this day among the Chorotes indians. Some graves, however, were more plentifully supplied with similar articles, as small cups of burnt clay, clay bottles with painted ornamentation, a small red clay bottle of a beautiful shape and of a fine material, a clay bowl with a handle in the shape of an animal's head. At the bottom of this bowl there is a black cross, painted, and with arms of equal size. Some corncobs were found in the bowl. In one grave two cups of exactly the same size and appearance were found, cut out of one piece of a hard kind of wood (Pl. IX,

Fig. 3); the exterior is richly adorned with engraved ornaments. The discovery so far from the sea of some shells of marine mussels, probably used as spoons, is remarkable. In these graves were further found: a bone case containing cactus prickles, used doubtless in tattooing, as is still the case among the Chorotes; an instrument flattened like a spoon at one end; some of the so called llama bits; it is possible that the objects in question were actually used for that purpose, but if so, I presume that they were not placed in the animal's mouth, but across its nose, for I have not been able to discover any trace of wear by the teeth on any of the numerous specimens I have come across. On one of the »bits» of the same description, there is a rein of llama wool fastened to it.

Outside most of the grave-grottoes I found that the sand for a somewhat limited area round was mingled with splinters of pottery, pieces of chipped stone, bones of animals, charcoal etc. These collections of remnants of a by-gone civilization each extended over an area of at the utmost 15 square metres; in places they were as much as $\frac{1}{2}$ metre in depth. That dwellingplaces and graves were found so close together goes to show that the custom, prevalent for instance among the Chiriguano Indians, of burying the dead near their residences, was general in this portion of the Puna too. In the collections spoken of above I came upon some clay vessels of rather larger size than the generality. Besides splinters of pottery, chipped stone, charcoal, corncobs and sundry bones of llamas etc., I also found there arrow and lance heads, axes, spindle whorls, stone beads, etc. The axes or parts of axes discovered there were made of schist, and were all of approximately the same type. One of the axes is about 15 mm. thick and the edge has been sharpened on one side. Some of the other axes found there, however, had their edges sharpened on both sides. Ambro-

setti and Lehmann-Nitsche describe implements of an exactly similar character, but they do not seem to have found any trace of the axes having been provided with handles. I made the discovery, however, very soon, that the implement had had a handle, for on several of the specimens I obtained there were plain marks of friction against some hard object on one of the surfaces of the projecting part, which, itself, resembled a handle. On some of the axes is plainly to be seen that the wooden handle has produced a shallow level furrow in the stone (Pl. VIII, Fig. 4). Subsequently I found in another grave a handle, bent at an acute angle, and shaped at one end for fastening the axe more securely to it. I placed one of the axes before described in contiguity to this handle and thereby convinced myself that the worn surface on the axe very closely corresponded to the level surface of the handle; the two parts were probably united together by means of something wound round them or by being encased in leather. It is possible that resin or some other adhesive substance may have been employed to prevent the axe gaping; the fact of its having been insecurely attached is, however, amply proved by the considerable amount of wear shown on the handle. (See back of the cover).

The fragile material of which the axe is made renders it an impossibility that it can have been used for dealing with any hard substance; on the other hand, this axe would be an admirable implement for peeling off the soft exterior of the pillaractuses, when the hard internal stem of the plant is to be got at. With the trifling exception of small bushes and the *Polylepis racemosa*, which resembles a shrub, and, moreover, occurs very sparsely, there do not exist any trees but the cactuses in the whole of the Puna that yield wood for manufacturing purposes or for fuel. These cactuses (Pl. II, Fig. 1) attain a respectable growth. The adaptability of the wood of the cactus for

manufactures is shown both by the loom (Pl. III, Fig. 1), made of cactus wood, and by the door (Pl. II, Fig. 2), of the same material.

About 8 kilometres north-west of Casabindo, in a narrow valley, there are numbers of remains of round stone huts. They are, indeed, so numerous, that we may well assume that a population of several thousands dwelt here. Stone huts of a similar appearance are still used in the Puna, though only sparsely. The illustration Pl. III Fig. 2 shows a modern hut of the kind. The roof-timbers are of cactus wood, covered with sticks and straw. The valley leading from Casabindo to the ruined city is hemmed in by fairly steep slopes, covered almost throughout with stone terraces of from one to two metres in height and of similar appearance to the irrigation terraces of the Inca Period, which are so common in Peru. Pl. IV Fig. 1 represents a terraced mountain slope at Casabindo. Pl. IV Fig. 2 shows a small grotto, the entrance to which has been blocked up with a stone wall. Grottoes of that kind are of very general occurrence in the vicinity of the irrigation terraces. At the foot of the wall there was a rectangular opening, large enough for a man just to manage to creep through. A couple of walled-up grottoes of a similar character to this one were investigated by me, but they proved to be empty and their object is a puzzle to me. Ambrosetti has described a grotto of the kind, but he too is unable to arrive at any satisfactory explanation of the use to which they were put, although he is inclined to consider them emptied graves.

Near the ruined city just mentioned, I came upon an urn of burnt clay, deposited in the ground and containing the dried-up corpse of a child with a deformed head. The mouth of the urn was covered with a clay plate turned upside down. The child had its sandals buried with it and

a rattle, consisting of the fruit of the *Juglans australis* that grows in Chaco. A clay dish, containing some corncobs, and a couple of bowls of pumpkin rind, had also been deposited in the urn. Beneath a projecting slab of rock, quite close to the above described grave, I came upon another, containing several skeletons and numerous objects, as a clay vessel, a bowl of pumpkin rind, a wooden spoon, small spindle whorls of wood, an implement in the shape of a knife of some hard wood, a bar of wood with remnants of a fibre tie attached. The Chorotes Indians have an implement which they use for carrying fish about in and which in appearance exactly resembles this; further a club or mallet, a diminutive club, a bow, a miniature bow, an axe-handle, a miniature axe-handle, a square slab of palm wood, and a bag of leather. This bag contained bars of wood that show evident traces of having been employed in kindling a fire. A more detailed account of the procedure, as observed among the present-day Chaco Indians, I propose to give in my lecture upon the Chorotes. In the same grave I further found a well preserved sandal of almost the same type as those used now in the Puna, small leather bags containing red, yellow and green pigments, implements of copper, a thin sheet of copper, an interesting implement of copper (Pl. VIII Fig. 3) and a whetstone.

Adjacent to those objects, which are of pure Indian origin, I also found, a wind-instrument, made of cow-horn, and the remains of a small knife of iron with a wooden handle. These two articles prove that the ruined city at Casabindo was still inhabited at the period of the Conquista.

At Cangrejillos, in the most northerly part of the Puna, I came upon a dwelling-place of considerable size with numerous remains of stone huts. Here was found, among other things, a stone axe of exactly the same type

as the Casabindo axes. At Chañi too, in South Puna, I came upon remains of large-sized villages, one of them at a height of nearly 5,000 metres above the sea. At the topmost summit of the same mountain, at 6,100 metres' elevation above the sea, my companions Herr von Hofsten and Dr Fries found remains of two carefully constructed L-shaped cromlechs, partially covered over with snow. Within the compass of one of the cromlechs there were found a cylindrical bead of a blue mineral, as hard as glass, and some splinters of pottery of the same appearance as those common in the dwelling-places in the Puna. Pieces of cactus wood were also found. It is uncertain whether there was a signalling station here, or a place of sacrifice. Owing to the rarefaction of the air, my two peons were unable to proceed to the top; I pushed on alone to the top of one of the peaks, where I took photographs at a height above the sea of about 6,000 metres. Pl. V, Figs. 1 & 2 represent species of sacrificial erections in use among the Puna Indians at the present day; the first is dedicated to the goddess Pachamama, and is formed of stones which are thrown up by every passer by; the other is in the form of a kind of miniature house, in which chewed cocoa is offered up.

In Quebrada del Toro I visited, at Ojo de Agua, a dwelling-place of very considerable extent. The slope forming the eastern wall of the valley was dotted over with the foundation walls of huts of a rectangular shape; on the western slope, on the other hand, there were none. In digging up a mound on the western side, I found numerous graves; consequently, that side had been reserved for the dead.

The grave-mound is about 13 metres high and 36 metres in diameter. The graves may have been originally marked above the surface of the earth by circles of small stones. I found traces of them at the top of the mound. The mound had evidently, in the process of time, sunk considerably; I

could judge that that was so by the skeletons and objects buried there being found in all sorts of positions. Professor Retzius informs me that the heads from this locality too are deformed. Many objects were here found in the graves. It is worthy of remark that in almost every grave rattles, consisting of the fruit of the *Juglans australis*, were met with; a specimen of the same description was also found, as I have above pointed out, in the grave of a child at Casabindo. Clay vessels of different types were very common. In addition to a number of other objects resembling those found in the graves at Casabindo, I also came upon some implements here, which deserve a special mention, as a sort of wooden knives of different sizes, the greater ones (Pl. IX, Figs. 1, 2), used possibly as knives in battle. The wood in them is particularly heavy and hard and was undoubtedly brought from Chaco. Some comblike instruments of wood one of which is shown Pl. IX, Fig. 4, were often found; as to the use they were put to, however, I do not venture even upon a guess. Pl. IX Fig. 5 shows a copper implement with wooden handle. Implements of that kind, but lacking wooden handles, are common enough among the finds in graves in the Puna and neighbouring districts. This is the first time they have ever been discovered with their wooden handles still attached to them. There is nothing to show that the handle was bound on with thread or was encased in leather; hence one must assume that the copper implement retained its place in the handle by reason of the pressure of the hand holding it. It is my opinion that these implements were used in cutting out leather.

Before drawing this account to a close, I desire to make mention of a dwelling-place that I came upon at Tolomosa, quite close to Tarija in Bolivia. This dwelling-place was far larger, both in extent and in wealth of relics of the past, than any of those I have previously described, and

derives, more-over, a special interest from the fact that nothing as regards the archæology of that neighbourhood was known before. Owing to the loose nature of the soil, however, and to the tropical rains, all the remains of foundation walls etc. had been destroyed; the picture on Pl. VI and on Pl. VII, Fig. 1, show how the ground by reason of its loose consistency, has been scored and furrowed by the rain, so as to produce the most marvellous shapes and figures in its surface. The ground, however, there was dotted almost all over, for an area of upwards of a square kilometre, with splinters of pottery, arrow-heads, spindle whorls, ornaments, copper implements, etc. etc., while here and there the rain had partially uncovered urns, which it was then possible to dig out of the soil that still encompassed them. To give an idea of the abundance of relics with which the ground round this dwelling-place was strewn, I may mention that, among other things, I found upwards of 3,000 artistically beaten arrow-heads (Pl. X, Figs. 1—5, 7—9, 12, 15 and 17) of almost every type, made of flint, obsidian, chalcedony and rock-crystal, and upwards of 500 spindle whorls of stone of 24 distinct main types (Pl. X, Figs. 14, 16 and 18). Further urns of the type which is characteristic of this locality (Pl. VIII, Fig. 1). An urn of an approximately similar appearance is figured in Dr Lehmann-Nitsche's Catalogue of the finds in the Puna.*)

Some other clay vessels of different types were also found; one who is figured on Pl. VIII, Fig. 2, is of a shape that is very common in Peru. Among other finds I may mention mortars of stone, a grinding stone with two handles, stone rings, in some cases evidently used as club-heads; further some pendants in the shape of animal figures (see Pl. X, Figs. 11, 13), a rattlesnake carved in bone (Pl. X, Fig. 6) and

*) *Lehmann-Nitsche*. Catálogo de las Antigüedades de la Provincia de Jujuy. La Plata 1903. Lám. IV, G, 6,

phallus-like pendants of stone (Pl. X, Fig. 10) and burnt clay. A few specimens of copper ware, such as rings for the arms and for the fingers; pins with heads shaped to resemble the llama's, pierced metal discs, implements of the same type as those common in the Puna and fragments of tweezers were also found. Some of the copper specimens I have had analysed, with the result that the material of which they are made is pronounced to be of sterling quality, with but trifling traces of any impurities. The finds from Tolomosa, as well as the other collections I made during the progress of the expedition, are undergoing examination, and I trust I may be able to complete my work upon them in the near future. The collections are all at the Ethnographical Section of the Riksmuseum in Stockholm.

To judge by the finds from the various dwelling-places, it would seem as though Ojo de Agua and Casabindo were inhabited by the same tribe, or at all events by tribes nearly related to each other, while in the Tarija Valley, on the other hand, there would appear to have dwelt a population considerably dissimilar to those in the above enumerated localities. The majority of the specimens found in the graves at Ojo de Agua have counterparts among the finds from Casabindo, e. g. llama bits, bows, implements and ornaments of copper, etc. etc. Common to both localities was the custom of depositing walnut rattles in the graves. These rattles whose place of origin must have been far-distant wooded regions, were possibly obtained by way of barter with some tribe of the Chaco Indians, or were cherished as relics in commemoration of warlike raids into far-off territories. The find of marine mussels proves that the inhabitants of the Puna must have come into contact with tribes who lived far removed from them. The custom of burying children in clay vessels was prevalent both at Ojo de Agua and at Casabindo, and all the heads from those two loca-

lities display deformation both as regards adults and children; the only head, on the other hand, which I succeeded in discovering in the Tarija Valley, does not show any trace of having been deformed. The specimens discovered at the last-mentioned locality are, moreover, with few exceptions, of an entirely different type from the Puna ones; the few isolated articles that are similar to specimens from Ojo de Agua and Casabindo, have, in all probability, come into the hands of the inhabitants of the Tarija Valley through the channel of trade with the people of the Puna. Further, at several dwelling-places in the Puna, among others at Cangrejillos, I discovered here and there an isolated specimen of arrow-heads analogous to those which are characteristic, both in type and variety of flint, of the Tarija Valley. As regards the age of the different dwelling-places, the finding of the iron knife and the cow-horn at Casabindo proves, of course, that the ancient culture, at any rate at that locality, continued on till the invasion of the Spaniards, but at all the other dwelling-places I investigated, both in the Puna and at Tolomosa, no object was met with, that could suggest foreign influence, and that, although the number of specimens obtained from the last-named locality was several thousands. It is still a tolerably risky proceeding to endeavour to identify the former inhabitants of the dwelling-places with any still extant Indian tribe; more extensive research is requisite before that can be attempted with any certainty of correctness. Many circumstances point, nevertheless, to the Indians now living in the Puna, though their numbers are exceedingly small, as descendants of the tribes that were once so numerous and so powerful in these regions. In spite of the great uncertainty still attaching to this problem, I have, nevertheless, thought it desirable to touch upon it here, in order to give rise possibly to a discussion upon it.



1.



2.

1. Grave grotto. In lower left corner of the grotto is an unearthed skeleton in squatting position. — 2. The same as above.



1.

1. Cacti. Puna de Jujuy.



2.

2. Door af Cactus wood. Puna de Jujuy.

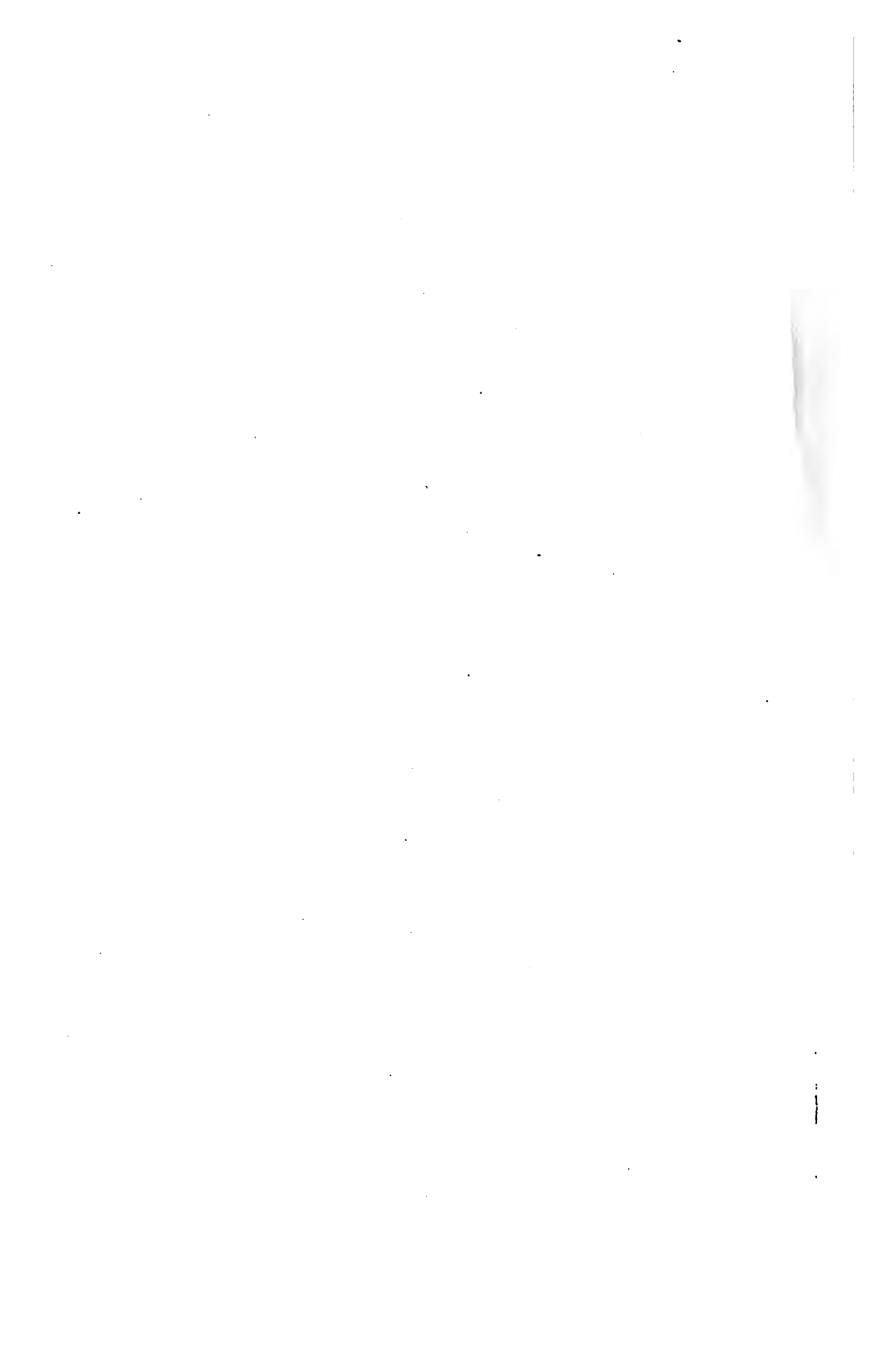


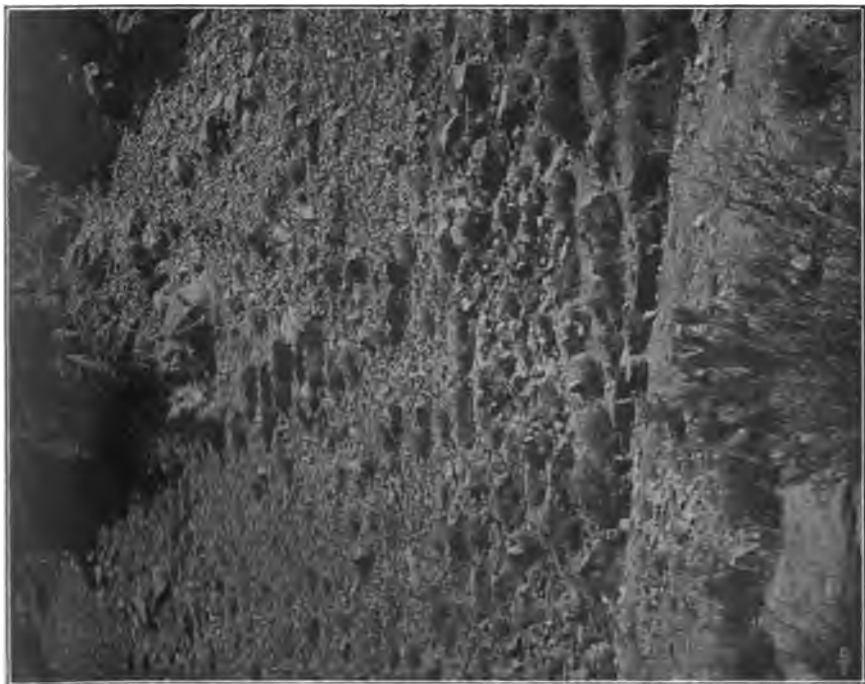
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2.

. Loom of cactus wood. Puna de Jujuy. — 2. Stone hut inhabited by Puna Indians.





1.

1. Ancient irrigation terraces near Casabindo.



2.

2. Walled-up grotto near Casabindo.



1.



2.

1. Barrow in mountain pass. Puna de Jujuy.
2. Small stone altars where Coca is sacrificed by Puna Indians.



1.



2.

1, 2. Loess formations in the Tarija Valley.



1.



2.

1. Loess formation in the Tarija Valley. In foreground fossil bones of the *Mastodon Andium*, washed out by rain.
2. Modern Indian hut in the Tarija valley.



1.



3.



2.

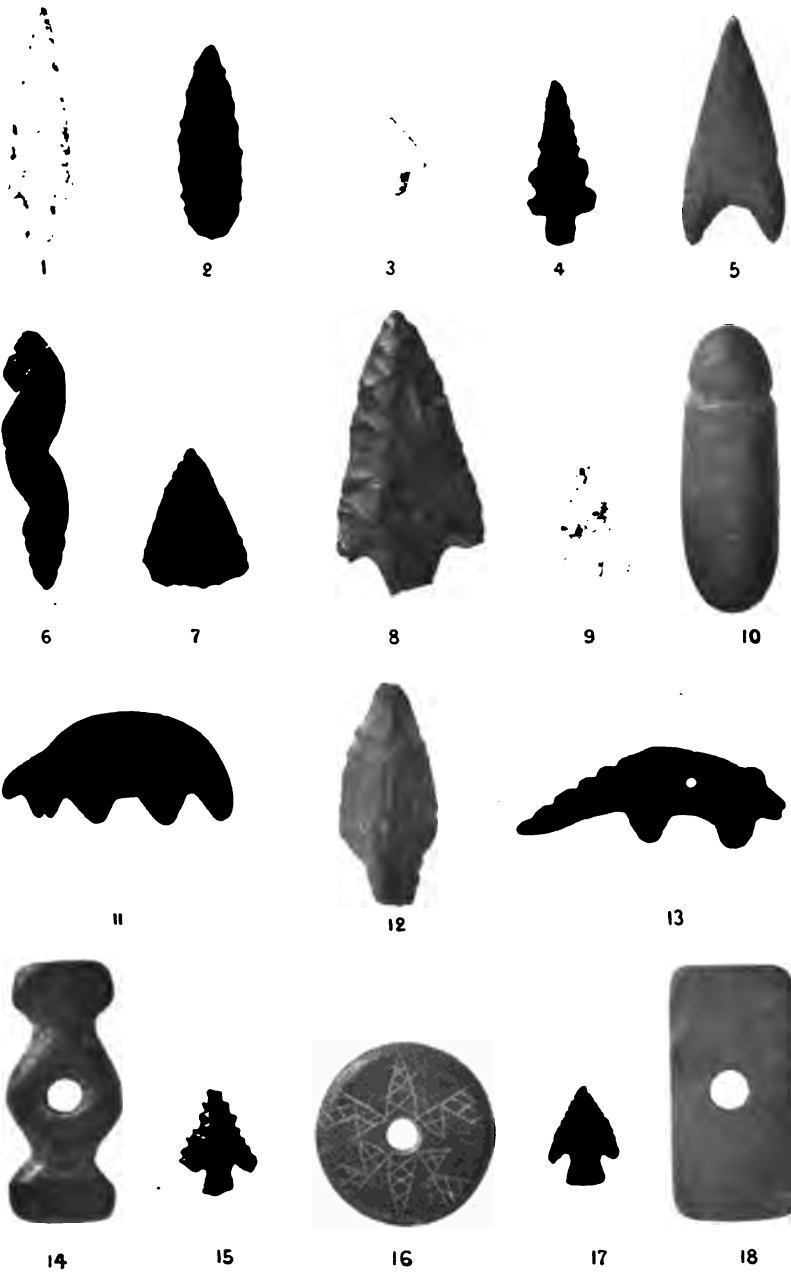


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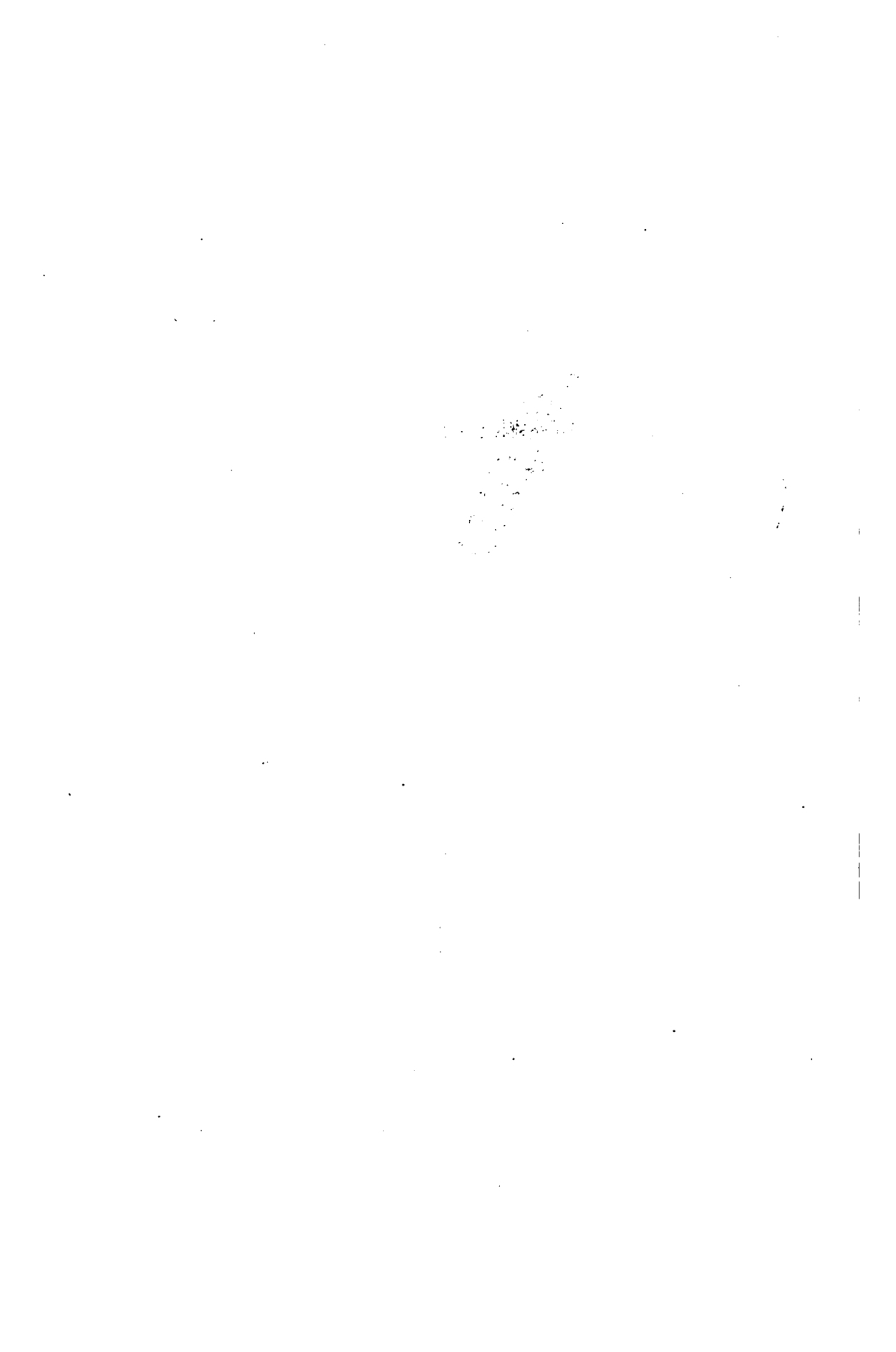
1. Painted clay vessel. Tarija. H. 17 cm. — 2. Red clay vessel. Tarija. H. 20.7 cm.
— 3. Copper implement. Casabindo. Br. 6.9 cm. — 4. Mutilated stone adze. Casabindo.
L. 11 cm.



1. Wooden implement. Ojo de Agua. L. 47 cm. — 2. Wooden implement. Ojo de Agua. L. 31 cm. — 3. Wooden goblet. Casabindo. H. 16.1 cm. — 4. Wooden implement. Ojo de Agua. L. 13.1 cm. — 5. Copper chisel with wooden handle. 14.5 cm.



Objects found at the ancient dwellingplace near Tolomosa in the Tarija valley. — (1/1).





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